Docket No. HARR-004

APPLICATION

FOR UNITED STATES LETTERS PATENT

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN THAT we, **Glen M. Harris**, a citizen of New Zealand, and **Justin M. Henry**, a citizen of Canada, have invented a new and useful remote control multimedia content listing system of which the following is a specification:

Remote Control Multimedia Content Listing System

BACKGROUND OF THE INVENTION

Cross-Reference to Related U.S. Provisional Patent Application

I hereby claim benefit under Title 35, United States Code, Section 119(e) of United States provisional patent application Serial Number 60/189,487 filed March 15, 2000. This application is a continuation of the 60/189,487 application. The 60/189,487 application is currently pending. The 60/189,487 application is hereby incorporated by reference into this patent application.

Field of the Invention

The present invention relates generally to media guide systems and more specifically it relates to a remote control multimedia content listing system for providing an updated content listing of various media within a remote control.

Description of the Prior Art

Remote control devices have been in use for years. Remote control devices are utilized to operate various external electronic devices including but not limited to

televisions, stereos, receivers, VCRs, DVD players, CD players storing multiple CDs, amplifiers, equalizers, tape players, cable units, lighting, window shades and other electronic devices. A conventional remote control is typically comprised of a housing structure, a keypad within the housing structure for entering commands by the user, electronic circuitry within the housing structure connected to the keypad, and a transmitter electrically connected to the electronic circuitry for transmitting a control signal to an electronic device to be operated.

The user depresses one or more buttons upon the keypad when a desired operation of a specific electronic device is desired. For example, if the user desires to turn the power off to a VCR, the user will depress the power button upon the remote control which transmits a "power off" control signal that is detected by the VCR resulting in the VCR turning off.

Because of the multiple electronic devices currently available within many homes and businesses today, a relatively new type of remote control is utilized to allow for the control of a plurality of electronic devices commonly referred to as a "universal remote control." Most universal remote controls have "selector buttons" that are associated with the specific electronic device to be controlled by the remote control (i.e. television, VCR, DVD player, etc.). Universal remote control devices allow for the control of a plurality of external electronic devices with a single remote control thereby eliminating the need to have a plurality of remote controls physically present within a room.

Because of the numerous electronic devices within a home today it is often times difficult for a user to remember the various programming and media materials available to them. Modern cable television networks now provide a television "guide" regarding the upcoming television programs. Digital television networks provide advanced search features for locating desirable programming. However, the user must

typically switch the television channel to guide thereby interrupting the viewing of their current television program.

Many individuals also have CD changers and/or MP3 units that are capable of storing a plurality of music media. The main problem with conventional CD changers is that they are difficult to program an album and/or song information into requiring a plurality of tedious keystrokes entered into the keypad of the remote control. Hence there is a need for a convenient remote control system that is able to receive updated information regarding various media for use as a guide system.

While these devices and systems may be suitable for the particular purpose to which they address, they are not as suitable for providing an updated content listing of various media within a remote control. Conventional guide systems are not user friendly and often times are tedious to program and utilize.

In these respects, the remote control multimedia content listing system according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus primarily developed for the purpose of providing an updated content listing of various media within a remote control.

SUMMARY OF THE INVENTION

In view of the foregoing disadvantages inherent in the known types of media guides now present in the prior art, the present invention provides a new remote control multimedia content listing system construction wherein the same can be utilized for providing an updated content listing of various media within a remote control.

The general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new remote control multimedia content listing system that has many of the advantages of the remote controls and multimedia guides mentioned heretofore and many novel features that result in a new remote control multimedia content listing system which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art multimedia guide systems, either alone or in any combination thereof.

To attain this, the present invention generally comprises a remote control having a housing, a display, a keypad, and an electronic system for receiving configuration data from a control station via a global computer network (e.g. Internet). The user may enter media information into the electronic system thereafter uploading the media information to the control station. The control station analyzes the uploaded media information and transmits the appropriate configuration data to properly configure the electronic system to provide a usable "guide" for the media. The user may also access a web site of the control station and manually enter the media information after which the control station sends the appropriate configuration data to the electronic system. The electronic system also preferably receives automatic updates of the configuration data when connected to the control station via the Internet for maintaining an updated multimedia listing.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and that will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of the description and should not be regarded as limiting.

A primary object of the present invention is to provide a remote control multimedia content listing system that will overcome the shortcomings of the prior art devices.

A second object is to provide a remote control multimedia content listing system for providing an updated content listing of various media within a remote control.

Another object is to provide a remote control multimedia content listing system that allows a user to easily program media listings contained within their home.

An additional object is to provide a remote control multimedia content listing system that is easy to utilize.

A further object is to provide a remote control multimedia content listing system that allows an individual to quickly configure a universal remote control for various types of media including but not limited to movies, music and television programming.

Another object is to provide a remote control multimedia content listing system that is simple to utilize.

Other objects and advantages of the present invention will become obvious to the reader and it is intended that these objects and advantages are within the scope of the present invention.

To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Various other objects, features and attendant advantages of the present invention will become fully appreciated as the same becomes better understood when considered in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the several views, and wherein:

FIG. 1 is an upper perspective view of the present invention.

FIG. 2 is a side view of the present invention.

FIG. 3 is a side view of the present invention illustrating electronic circuitry within.

FIG. 4 is a block diagram illustrating the communications between the present invention and a plurality of external electronic devices.

FIG. 5 is a block diagram illustrating the electronic system of the present invention electrically connected to the power source and in communication with the external electronic devices.

FIG. 6 is a block diagram illustrating the electronic system along with a plurality of accessory devices connected to thereof.

FIG. 7 is a block diagram of the present invention in communication with the control station via a global computer network wherein the electronic system is directly connected to an intermediary computer system.

FIG. 8 is a block diagram of the present invention in communication with the control station directly via a global computer network without utilizing an intermediary computer system.

FIG. 9 is a flowchart illustrating the overall operation of the present invention for downloading the configuration data from the control station.

FIG. 10 is a flowchart illustrating the connecting to the control station for uploading music data and downloading configuration data.

FIG. 11 is a flowchart illustrating the process of receiving the uploaded music data, determining the identity of each music CD and transferring the configuration data to the electronic system.

FIG. 12 is a flowchart illustrating the usage of a web page for entering media information into.

FIG. 13 is an illustration of a web page for entering media information into.

FIG. 14 is a top view of the remote control showing the music guide being displayed on the display.

FIG. 15 is a top view of the remote control showing the television guide being displayed on the display.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The following description is presented to enable any person skilled in the art to make and use the invention, and is provided in the context of a particular application and its requirements. Various modifications to the disclosed embodiments will be readily apparent to those skilled in the art, and the general principles defined herein may be applied to other embodiments and applications without departing from the spirit and scope of the present invention. Thus, the present invention is not intended to be limited to the embodiments shown, but is to be accorded the widest scope consistent with the principles and features disclosed herein.

The data structures and code described in this detailed description are typically stored on a computer readable storage medium, which may be any device or medium that can store code and/or data for use by a computer system. This includes, but is not limited to, magnetic and optical storage devices such as disk drives, magnetic tape, CDs (compact discs) and DVDs (digital video discs), and computer instruction signals embodied in a transmission medium (with or without a carrier wave upon which the signals are modulated). For example, the transmission medium may include a communications network, such as but not limited to the Internet or wireless communications.

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, FIGS. 1 through 15 illustrate remote control multimedia content listing system **10**, which comprises a remote control having a housing, a display, a keypad, and an electronic system for receiving configuration data from a control station via a global computer network (e.g. Internet). The user may enter media information into the electronic system thereafter uploading the media information to the control station. The control station analyzes the uploaded media information and transmits the appropriate configuration data to properly

configure the electronic system to provide a usable "guide" for the media. The user may also access a web site of the control station and manually enter the media information after which the control station sends the appropriate configuration data to the electronic system. The electronic system also preferably receives automatic updates of the configuration data when connected to the control station via the Internet for maintaining an updated multimedia listing.

A. Remote Control Structure

The present invention generally is comprised of a housing **20** having a structure and shape similar to conventional remote control devices. The housing **20** may be constructed of various types of materials and shapes as can be appreciated by one skilled in the art. The housing is preferably structured to be ergonomic for a majority of users.

The present invention may be utilized to control and operate various external electronic devices including but not limited to televisions, stereos, receivers, VCRs, DVD players, CD players, CD changers, amplifiers, equalizers, tape players, cable units, satellite dish receivers, lighting, window shades and other electronic devices. Almost any number of external electronic devices may be controlled by the present invention as can be accomplished with conventional remote control devices.

Figure 6 is a block diagram of an exemplary electronic system **100** for practicing the various aspects of the present invention. The electronic system **100** is preferably enclosed within the housing. A portable power source **140** is electrically connected to the electronic system **100** for providing electrical power to the electronic system **100**. The power source **140** may be comprised of any power source such as a battery structure (disposable or rechargeable), solar cells, or direct power.

The electronic system **100** preferably includes a display screen **104**, a network interface **112**, a keypad **114**, a microprocessor **116**, a memory bus **118**, random access memory (RAM) **120**, a speaker **102**, read only memory (ROM) **122**, a peripheral bus **124**, a keypad controller **126**, and a communications device **108**. As can be appreciated, the electronic system **100** of the present invention may be comprised of any combination of well-known computer devices, personal digital assistants (PDAs), laptop computers, remote control devices and other electronic systems.

The microprocessor **116** is a general-purpose digital processor that controls the operation of the electronic system **100**. Microprocessor **116** can be a single-chip processor or implemented with multiple components. Using instructions retrieved from memory, microprocessor **116** controls the reception and manipulations of input data and the output and display of data on output devices.

The memory bus **118** is utilized by microprocessor **116** to access RAM **120** and ROM **122**. RAM **120** is used by microprocessor **116** as a general storage area and as scratch-pad memory, and can also be used to store input data and processed data. ROM **122** can be used to store instructions or program code followed by microprocessor **116** as well as other data.

Peripheral bus **124** is used to access the input, output and storage devices used by the electronic system **100**. In the described embodiment(s), these devices include a display screen **104**, an accessory device **106**, a speaker **102**, a communications device **108**, and a network interface **112**. A keypad controller **126** is used to receive input from the keypad **114** and send decoded symbols for each pressed key to microprocessor **116** over bus **128**.

The display screen **104** is an output device that displays images of data provided by the microprocessor **116** via the peripheral bus **124** or provided by other components

in the electronic system **100**. The display screen **104** displays the media guide for the user to view and interact with using the keypad **114**. The display screen may be comprised of any well-known display means such as LED, LCD or the like. Other output devices such as a printer, plotter, typesetter, etc. can be utilized as an accessory device **106** with the electronic system **100**.

The microprocessor **116** together with an operating system operate to execute computer code and produce and use data. The computer code and data may reside on RAM **120**, ROM **122**, or other storage mediums. The computer code and data could also reside on a removable program medium and loaded or installed onto the electronic system **100** when needed. Removable program mediums include, for example, PC-CARD, flash memory, and floppy disk.

The network interface **112** is utilized to send and receive data over a network connected to other electronic systems. The network interface may also be comprised of a Universal Serial Bus (USB), an external bus standard that supports data transfer rates of 12 Mbps (12 million bits per second). A single USB port can be used to connect up to 127 peripheral devices, such as mice, modems, and keyboards. An interface card or similar device and appropriate software implemented by microprocessor **116** can be utilized to connect the electronic system **100** to an existing network and transfer data according to standard protocols including data over a global computer network such as the Internet. The electronic system **100** may connect to the Internet **130** via a computer system **60** or directly as illustrated in Figures 7 and 8 respectively.

The keypad **114** is used by a user to input commands and other instructions to the electronic system **100**. Other types of user input devices can also be used in conjunction with the present invention. For example, pointing devices such as a computer mouse, a jog switch **22**, a track ball, a stylus, or a tablet to manipulate a

pointer on a screen of the electronic system **100**. The user utilizes the keypad **114** to control the viewing and operation of the media guide of the display **104**.

The present invention can also be embodied as computer readable code on a computer readable medium. The computer readable medium is any data storage device that can store data which can be thereafter be read by a electronic system. Examples of the computer readable medium include read-only memory, random-access memory, magnetic data storage devices such as diskettes, and optical data storage devices such as CD-ROMs. The computer readable medium can also be distributed over a network coupled electronic systems so that the computer readable code is stored and executed in a distributed fashion.

The communications device **108** may be comprised of any well-known communication system that allows communications with external electronic devices. The communications device **108** may provide for various types of communication such as but not limited to via infrared (IR), wireless (e.g. BLUETOOTH), unidirectional, bi-directional, radio frequency (RF), visible light, ultrasonic and various other means for communicating with external electronic devices. The communications device **108** may be capable of receiving a "signal sample" from another remote control wherein the signal sample is stored within the electronic system as is common with universal remote controls.

Input into the electronic system is accomplished mainly through the usage of the keypad **114**. The keypad **114** includes a plurality of buttons that allow the user to execute one or more commands. The keypad **114** allows for the control of basic functions such as volume, channel manipulation, mute, and last channel. Various other input devices may be utilized to input data into the electronic system **100** such as a jog switch **22** (i.e. dial), motion and orientation detectors, touch sensitive screens and voice recognition. The display **104** provides information to the user such as possible tasks to complete or the current state of the external electronic devices.

B. Communication System

The present invention is best operated upon a global computer network such as the Internet **130**. A plurality of computer systems around the world are in communication with one another via this global computer network.

The present invention preferably utilizes the Internet **130** for communications, however it can be appreciated that as future technologies are created that various aspects of the invention may be practiced with these improved technologies. In addition, wireless technologies provide a suitable communications medium for operating the present invention.

C. Web Page

The present invention is preferably utilized in conjunction with information presented upon a web page or other displayable medium representing the control station **40**. A web page is typically comprised of a web page code that is stored upon a computer server. A typical web page includes textual, graphical and audio data within for display upon a computer system **60** and may be comprised of various formats.

The web page code may be formatted such as but not limited to HTML (Hyper-Text Markup Language), XML (Extensible Markup Language), HDML (Handheld Device Markup Language), and WML (Wireless Markup Language) that is displayable upon a computer system. Scripts such as JavaScript may be included within the web page code to request the server computer to request a specific audio file to be played with respect to an advertisement. As can be appreciated, additional formats for the web page code may be utilized as developed.

The web page code is retrieved by a computer system **60** or electronic system **100** via the Internet, wireless network or other communications channel utilizing a

conventional web browser such as but not limited to NETSCAPE or MICROSOFT INTERNET EXPLORER. An individual using the computer system **60** enters the URL (Uniform Resource Locator) identifying the web page to retrieve the web page code associated with the desired web page.

As shown in Figure 13 of the drawings, at least one of the web pages associated with the control station **40** allows for the direct entry of information such as media information. More particularly, information relating to the type of media (e.g. video tape, compact disc, DVD, tape, etc.) and title information (e.g. artist name, album name, etc.) entered into the web page that are thereafter forwarded to the control station **40** for determination of the configuration data. Various other designs of web pages may be utilized to receive various types of information as can be appreciated by one skilled in the art.

D. Control Station

The control station **40** is in communication with the Internet **130** via various well-known means. The control station **40** is preferably accessed by users via a web page which allows the users to identify themselves and modify user settings. The user may input various conditions and requirements regarding the external electronic devices **12** that the remote control is to control along with the media. The user settings and data input may be modified at anytime via the web page or other means.

The control station **40** is in communication with one or more programming stations **50** that provide updated media information to the control station **40**. The media information is basically comprised of media type, title, and other relevant information. It can be appreciated that additional types of media information may be received and stored by the control station **40**.

The control station **40** maintains a database that allows for the determination of a media contained within a user's home entertainment system. The database allows for the determination of what media is on the electronic devices **12**. The control station **40** is preferably updated at periodic intervals regarding updated information regarding new media on the market along with updated television programming listings.

E. Media Guide

The "media guide" is controlled by the electronic system **100** and displayed by the display **104** for the user to view. The media guide provides a listing of the media (e.g. compact discs, DVDs, video tapes) for the user to view. An example of for the media guide is illustrated in Figures 14 and 15 of the drawings.

The user may utilize the keypad **114** to "scroll" and "select" the media they are interested in watching and/or listening too. For example, a listing of television programming may be displayed for a specific period of time wherein the user may select a displayed programming event to watch. When the user selects the desired programming, the electronic system **100** transmits a signal to the appropriate external electronic devices **12** to achieve the desired setting for the electronic devices **12**. The media guide may also include additional information relating to the media to be watched such as a description of a movie listed on the media guide and related information.

For example, when the user activates the television listing, it is displayed correctly for the current time. The user can scroll to a show of interest shown on the screen. When the user "selects" that show, the electronic device determines what channel change signal needs to be sent to the television to display that show. When the user activates the television listing, the user can scroll forward in time and select a show that they are interested in recording. When the user "selects" that show, the electronic system determines what date and time that show is on and sends the

appropriate control signals to the VCR to program the VCR to record that show. When the user activates the listing of their CDs and CD track names, the user can scroll to a song of interest shown on the screen. When the user selects that song, the electronic device **12** determines what CD and track change signals need to be sent to the CD player.

F. Media Information

Media information is displayed in further detail upon the display **104**. Media information for music may include but is not limited to title, artist and track information. Media information for DVDs may include but is not limited to title, actors and type of movie (e.g. comedy, drama, horror, etc.). As can be appreciated, various types of media information may be utilized within the present invention for the user to utilize within their remote control.

G. Program Warning

The electronic system **100** is capable of being programmed to "warn" the user of an upcoming media event such as the showing of the television show FRIENDS on NBC. The user utilizes the keypad **114** to select the desired show and then enters the required information for the electronic system to determine when to sound an alarm. Various other features may be programmed into the electronic system **100** to assist the user in enjoying all forms of media.

H. Operation

To configure the electronic system **100**, the user may enter the media information directly into the electronic system **100**. The user may enter all or a portion of the media information. If only a portion of the media information is entered, such as the album title, the electronic system **100** may then be connected to the control station **40** for downloading the remaining media information such as artist name and track information. The user may also directly enter the media information into the web page

of the control station **40** as shown in Figure 13. After the control station **40** has received the necessary information to determine the media desired to be listed within the media guide, the control station **40** searches for information relating to the media information input by the user. The control station **40** thereafter generates configuration data which is thereafter transferred to the electronic system **100** via the Internet **130**. The electronic system **100** stores the configuration data within for generating the media guide upon the display **104** when desired by the user. The media guide is displayed listing information relating to music, television, DVD and other media. The media guide preferably lists the items in a structured format for the user to view and select as shown in Figures 14 and 15 of the drawings. It can be appreciated that the structure and function of the media guide may be comprised of various guide structures that are commonly utilized within the media industry and are hereby incorporated by reference into this patent application.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed to be within the expertise of those skilled in the art, and all equivalent structural variations and relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction

and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.